WPAFB Radiation Safety Office

RADIATION INSTRUCTION ACKNOWLEDGMENT

Full Name: _____ SSN: ___ - ___ - ___

Organization: _____ Office Symbol _____

Check only one: Military ☐ Civilian ☐ Contractor ☐ Reservist ☐ Guard ☐

Date of Birth: ___ / ___ / ___ (month/day/year) Duty Phone: _____ TLD Area: ___

Occupation: _____ AFSC or equivalency: _____

Instruction Acknowledgment Certification

I hereby acknowledge that I have read and understand the Personnel Dosimetry Program Instructions on the reverse. I am aware of my right to review my monthly/quarterly occupational exposure results (AL Listing 1449) and the annual history of exposure to ionizing radiation report (AL Listing 1527). I have also read and understand the Air Force's program to maintain occupational exposures As Low As Reasonable Achievable (ALARA).

Signature: _____ Date: _____

Instruction Concerning Prenatal Radiation Exposure (10 CFR 19.12)

I have been advised of the risks to unborn children of women who are exposed to ionizing radiation during pregnancy. I understand my responsibility of voluntary written declaration of pregnancy to my employer/supervisor and WPAFB Radiation Safety Office for applying the established dose limits for embryo/fetus specified in 10 CFR 20 to minimize the risks to the unborn child.

Signature: _____ Date: _____

Determination of Prior Occupational Dose (10 CFR 20.2104)

I received the following occupational radiation dose this current calendar year: _____ rem ☐ known ☐ estimated

Signature: _____ Date: _____

Have you or do you work as a radiation worker outside the USAF? Yes ☐ No ☐ (Initial box)

If you initialed yes, we must obtain dates and locations so that we may attempt to obtain the records for a cumulative occupational radiation dose from current and/or past employers.

Personnel Dosimetry Program Instructions

Individuals who routinely work with or in the vicinity of sources of ionizing radiation may be designated as radiation workers by the WPAFB Radiation Safety Officer (RSO) after an evaluation of the potential hazards. Radiation workers may be issued personnel monitoring devices that are exchanged at monthly or quarterly intervals depending on the work environment. Personnel monitoring devices used by the USAF are thermoluminescent dosimeters (TLD).

Three types of dosimeters or badges are issued based on the type of radiation work performed. The three types are:

1. *Whole body dosimeter* - designated to provide a representative sample of radiation exposure to the whole body. This dosimeter shall be worn between the waist and the shoulders. If you wear a leaded apron, this dosimeter shall be worn under the apron.
2. *Collar dosimeter* - designated to provide a representative sample of radiation exposure to critical organs above the shoulders (i.e., thyroid, lens of the eye, and head) thus shall be worn above the shoulders. If you wear a leaded apron, this dosimeter shall be worn outside the apron or other protective shield.
3. *Extremity or finger dosimeter* - designated to provide a representative sample of radiation exposure to the hand. This dosimeter shall be worn on a finger of the hand which is most likely to be used for handling sources. The dosimeters orientation shall be toward the source of radiation.

Individual users are responsible for ensuring that the dosimeter is used properly. Deliberate exposure constitutes falsification of an official record. Specific wearing and storage instructions of dosimeters are:

- Don prior to entering radiation work areas
- Return to the storage location after use
- Shall NEVER be worn when undergoing medical procedures
- Immediately report if lost or missing

Results of your radiation exposure are reviewed by the WPAFB RSO for comparison to radiation exposure standards, unusual occurrences, and of the development of trends. Afterwards, the results are made available for your review in the work area. They may also be reviewed in the WPAFB Radiation Safety Office. A cumulative lifetime radiation exposure, while in the USAF Personnel dosimetry Program, is updated annually and may be reviewed in the WPAFB Radiation Safety Office.

ALARA Philosophy

The USAF and WPAFB require that occupational exposures be kept As Low As Reasonably Achievable (ALARA). This means that every activity involving exposure to ionizing radiation should be planned so as to minimize unnecessary exposures consistent with existing technology, costs and operational requirements. This concept was developed based on that no level of radiation exposure is risk free. Therefore, a job involving exposure to radiation should be scheduled only when benefit justifies the risks. All design, construction, and operating procedures should be reviewed to reduce unnecessary exposures.

Maximum Permissible Exposure Limits/Year

Whole body (TEDE)	5 Rem
Eye	15 Rem
Skin or extremity	50 Rem

Fertile Female Instructions

During pregnancy, you should be aware of your surroundings and actions that could effect your unborn child. For those who work in or visit areas where radioactive materials or ionizing radiation producing devices are used, it is desirable that you understand the biological risks of radiation to your unborn child.

Requirements have been established in Title 10 Code of Federal Regulations (10 CFR) to minimize an unborn child's risk from exposure to ionizing radiation during pregnancy. The dose to the embryo-fetus during the entire pregnancy, due to occupational exposure of a declared pregnant woman, shall not exceed 500 millirem[1] with a uniform monthly exposure rate. The National Council on Radiation Protection and Measurements (NCRP)[2] recommends a monthly equivalent dose limit of 50 millirem to the embryo-fetus (excluding medical and natural background radiation) once the pregnancy is known. As in all occupational exposures to ionizing radiation, the total dose to the unborn child shall be maintained ALARA.

The term declared pregnant woman is defined as "a woman who has voluntarily informed her employer, **in writing**, of her pregnancy and the estimated date of conception".[3] This has been incorporated into the federal law for a specific purpose. The established limit could theoretically result in job discrimination for women of childbearing age and perhaps in the invasion of privacy (if pregnancy tests were required). The law has taken the position that special protection of the unborn child is the responsibility of the pregnant worker and is strictly voluntary.

It is important that you understand there are risks to an unborn child from radiation received by the mother as a result of occupational exposure. It is your responsibility to balance the risk and benefits of working around ionizing radiation and make informed decisions.

If you do become pregnant and decide to declare pregnancy, it is important that you inform your employer/supervisor as quickly as possible. This notification **must** be in writing with a copy forwarded to the WPAFB Radiation Safety Office. We will then work with you and your supervisor to determine what, if any, steps should be taken to minimize the risks.

Remember, it is ***your*** responsibility to decide whether or not to declare pregnancy so that the radiation dose to the embryo/fetus will be ensured to be below the prescribed limits, thus reducing the potential risk.

Unsealed Radioactive Material

This document has been directed primarily toward occupational exposure to ionizing radiation from outside the body. You should be aware that there may be a risk of radioactive material entering the body in work places where unsealed radioactive material, often as a liquid or gas, is used. A list of commonly used materials and safety precautions for all circumstances is beyond the scope of this paper, but certain general precautions might include the following:

1. Do not smoke, eat, drink, or apply cosmetics in areas where unsealed radioactive materials are used.
2. Do not pipette solutions containing radioactive material by mouth.
3. Use disposable gloves while handling uncontained radioactive material.
4. Wash hands after working around uncontained radioactive material.
5. Wear lab coats or other protective clothing in case of a spill.
6. Be familiar with **ALL** operating procedures developed for use of radioactive material.

Background Radiation

We are all continually exposed to various types of radiation: heat, light, ultraviolet, microwave, ionizing and so on. In reality, almost everything is radioactive and all activities involve some exposure to radiation. People are exposed to different amounts of natural "background" ionizing radiation depending on where they live. As an example, increasing concern has been given to radon gas in our homes. This background radiation comes from various sources and includes:

	Average Annual Dose[4]
Radon	200 millirem
Terrestrial radiation	28 millirem
Cosmic radiation	27 millirem
Radioactivity in the human body	40 millirem
(rounded)	300 millirem

If you have any questions regarding this document or other issues concerning ionizing radiation, please contact the WPAFB Radiation Safety Office at (937)257-2010.

[1] 10 CFR 20.1208(a)

[2] NCRP Report Number 116

[3] 10 CFR 20.1003

[4] NCRP Report Number 94